March 13, 2017

WENF MAR 20 2017

Paul Marshall

Environmental Engineer (WWPD/WENF)

U.S. Environmental Protection Agency Region 7

11201 Renner Blvd.

Lenexa, Kansas 66219

Mr. Marshall,

The City of South Sioux City Nebraska is responding to your information request received on or about March 1, 2017. I have read the directions carefully and to the best of my ability attempted to completely answer the questions.

Due to the large amount of data requested and large scale maps, it is not practical to try to send the requested data via email. I believe that once you see the volume and the size of the maps, you will understand why the materials is being sent by mail.

If further explanation is needed, do not hesitate to contact me.

I appreciate your review of these documents and will continue to work with you and the Agency regarding this situation.

Respectfully,

Robert Livermore

1.a. The daily briefing and conference call information has been put on the thumb drive that is in the packet.

1.b. The city council meeting minutes is on the same thumb drive. This is the only item that I believe I have regarding this question.

1.c. The results of all monitoring is on the thumb drive. This results of any ongoing monitoring of the sewer system is on the city's website and is updated as we receive it from the lab. If the USEPA would like to receive via email or some other means, that can be done.

2. This request will be on a page in the packet.

3. This request will be on the same page as 2.

4.a. All monitoring results are on the thumb drive that is in the packet.

4b. A collection map is in the packet that identifies each monitoring location.

4c. On the collection map, it depicts each commercial and industrial user. Below is the description and if known, the flow.

Big Ox Energy Pretreatment discharge from Richardson Milling, BPI, CHS, Omega industries, and approximately 30 homes. Flow approximately 2 MGD.

K and B Transportation Trucking company with a few repairs and office space. Estimated flow<10,000G/D.

Crystal Café A restaurant /café with approximately 20 tables. Food preparation. Estimated 10,000 G/D

Everett's Furniture Furniture retail. Estimate <2,000 G/D.

America's Best Value Inn Approximately 100 room motel. Estimated at 10,000 G/D.

ADM Manufacture/process feed products for animals. Estimated at 20,000 G/D

Arby's Fast food restaurant Prepare food and has seating area. Estimated at 10,000 G/D

Bimbo Bakery Bread bakery Estimated at 15,000 G/D

Kum & Go Convenience Store/with gas sales. Some food production. Estimated at 10,000 G/D

5. To my knowledge no records exist that were "non email". To my knowledge there was no communication with Big Ox concerning H2S prior to Big Ox discharging into the city's sewer system.

6. Provide in the packet are the operators reports and the report from Mersino Pumping. Mersino is the company providing the pumping at the temporary lift station.

6a. The description of the location of the release was in a ditch directly north of the intersection of 152nd street and C Avenue. Description of the structure is a manhole riser structure.

6.b. The dates were February 7 & 8, and February 10, 2017. Volumes were estimated at <100 gallons, 50,000 gallons, and 25,000 gallons respectably. The pollutants characteristics were such that the original source of the water is high percentage of food processing industrial flow. The remainder would be a small percentage of human or household waste. This entire flow would have gone through a pretreatment DAF style unit. Much of the organics would have been removed before discharging into the line that produced the release.

6.c. Cause of the release: The letter from Mersino that is in the packet best describes the incidents.

Several items have been done in an effort to ensure another release doesn't happen. They are listed in the following:

1. The electrical pumps were completely changed out to diesel pumps because the electrical ones continued to have seals go out.
2. Flow monitoring was done at the temp. station in an effort to determine the flow ranges and better determine if the proper pump size was being used. The 6" pumps were switched out and 8" pumps were brought in because it was felt that they would be better suited for the flows.
3. Installed a better level sensing system so that the lead and lag pumps would work in tandem better.
4. Now have back up pumps onsite that are ready for immediate service if needed.
5. This pump station is a temporary and is expected to be decommissioned in July 2017.

6.d. Remediation efforts were:

1. Correct pumping situation and stop further release of material
2. Even though the area is fairly remote and a good distance from any home, the area was secured from people.
3. A vac truck was dispatched quickly to the area to suck up and free liquids that did not go back down the manhole.
4. The area held the water in a fairly confined spot and the ground was frozen, so trash pumps were also used to draw up as much free liquid as possible.
5. The affected area was then scraped of any material/dirt down to the frost line and removed.

6.e. No samples were taken of the released water itself. If needed the discharge from Big Ox is done as part of the pretreatment program with the City of Sioux City.

6.f. Copies of the release reports that were sent to the NDEQ are part of the packet. NDEQ had inspectors on site.

Temporary Pumps at 39th 2.10.17 Weldon

At 6 pm on 2/10/17 I had a high wet well alarm by 6:15 I noticed the back up and made sure the pumps were running correctly and they were, at 6:30 I checked the manholes and noticed the water in the ditch. 7:30 start clean up 7:40 trash pump started at roughly 8:30 or 9 the trash pump was done pumping, I had one load out with the jet truck currently the pumps are on a pump watch

Spill Report from Derek Morris 2/8/2017

NDEQ spill # 020817-NH -1350

Location: 1st manhole to the north on152nd St
Feb. 7th, 2017 9 PM
An overflow was noticed when the electric pump at the temporary lift station. Seal went out. The spill was very minor and was cleaned by a water hose back into the manhole.

Feb. 8, 2017 10:30 AM
A mass surcharge from Big Ox caused the same manhole to overflow and go into the ditch. An immediate clean-up crew was notified and started clean up. 2 2" trash pump and a Jet truck pumped back into the manhole. It took 7 hours to transfer around 95K gallons. The ground will be dug up to eliminate the remains of the spill.

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Monday, February 27, 2017

To: Tim Higgins
McClure Engineering
617 Pierce St., Suite 201
Sioux City, IA 51101
Re: South Sioux City Pump Failures

Dear Mr. Higgins:

This letter summarizes Mersino's preliminary findings regarding the series of pump failures in December 2016 and January 2017 on the South Sioux City hydrogen sulfide mitigation project.

The system initially delivered to South Sioux City consisted of an 8-inch electric primary pump and 6-inch diesel standby pump. Given the flow rate of 1,400 gallons per minute identified at our first meeting on site, and the configuration of suction and discharge piping, both pump models are capable of delivering this flow rate continuously while maintaining water level in the manhole below the top of the sewer pipe; the 8-inch pump with greater efficiency and the 6-inch pump at lower standby cost. The pumps were configured to operate as primary and backup; due to the combined discharge line, operating both pumps simultaneously would result in a large increase in discharge pressure and overall flow rate would not increase substantially.

However, it appears that while the flow averaged over an entire week is approximately 1,400 GPM, this includes significant periods of near-zero flow during which the pumps are not required to operate at all. The true average flow rate during pumping is now understood to be 1,950 GPM.

When the pumping system was delivered and installed, the pump RPM and discharge throttling valve were set to produce a duty point of 1,400 GPM. This would not have been sufficient to prevent water from rising in the manhole during sustained higher flows, and it is believed that the City's on-site personnel increased the rotational speed of the pumps in an effort to meet the actual flow rate. Such a change should be accompanied by a calculated adjustment of the discharge throttling valve to ensure each pump is operating within its performance envelope – if performed correctly, these adjustments would have allowed the initial pumping system to produce flow rates of up to 1,750 GPM, provided water in the manhole was permitted to rise to 7 feet below grade, and all components were returned to original settings as the water level subsided.

Due to the unknown and higher-than-expected flow rates, the pumping system was not always adjusted to a safe duty point, either through incorrect settings of the pump RPM and throttling valve, or by failure to return the system to the initial configuration as water in the sewer subsided below 7 feet below grade. In this configuration, the pumping system had insufficient net positive suction head available for the impeller speed, leading to cavitation (the spontaneous formation and violent collapse of small low-pressure vapor bubbles within the liquid) and severe internal vibration. This vibration would have accelerated wear to the seals and other internal components, and may have led to the premature failure of the pumps. Furthermore, the 6-inch pump is not suitable for a flow rate of 1,950 GPM in this configuration at all, and a balanced adjustment would not have been possible.

Once the correct flow rate of 1,950 GPM was identified, the pumping system was modified to consist of two 8-inch pumps, each independently capable of delivering 1,950 GPM continuously while maintaining water level in the manhole below the top of pipe. Given correctly balanced RPM and pressure settings, these pumps will not experience the cavitation and accelerated wear experienced over the last few months.

We look forward to the smooth and successful completion of this project.

Thank you,

Ben Hutcheson
Mersino

#2. Identify the person to contact regarding your response, including title, address and phone number.

Robert Livermore

Public Works Director

125 E. 26th Street

South Sioux City, NE 687776

402.494.7534

#3. Your responses to the questions are to be provided by a qualified professional. Provide the name and credentials of the person(s) providing information in response to this Information Request.

Robert Livermore – Public Works Director, City of South Sioux City

Michael Washburn – McClure Engineering

Tim Higgins – McClure Engineering

Heather Dallen – McClure Engineering, Administration

Matt Andrews – IT Department, City of South Sioux City

Carolyn Geschke – Administration, City of South Sioux City

ENCLOSURE 2

STATEMENT OF CERTIFICATION
(To be submitted with every response to the Information Request)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Robert Livermore
Signature

March 13, 2017
Date

Robert Livermore
Printed Name

Public Works Director
Title

40 C.F.R. § 122.22(a). Signatories to permit applications and reports.

(1) **For a corporation.** By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Note: EPA does not require specific assignments or delegations of authority to responsible corporate officer identified in Sec. 122.22(a)(1)(i). The Agency will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the Director to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under Sec. 122.22(a)(1)(ii) rather than to specific individuals.

(2) **For a partnership or sole proprietorship.** By a general partner or the proprietor, respectively; or

(3) **For a municipality, State, Federal, or other public agency.** By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: (i) The chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).